# REMARKS

This amendment is responsive to the Office Action dated December 23, 2008. In the amendment, claims 1, 4, and 6 have been amended. Claims 9-14 have been cancelled. New claims 15-26 have been added. These amendments add no new matter. Support for these amendments may be found variously throughout the Specification, including, but not limited to, paragraphs [0062]-[0066]; paragraph [0096]; FIGS. 5A and 5B; and original claims 1 and 4. Claims 1, 3, 4, 6, and 15-26 remain pending in the application. Reconsideration and allowance of the pending claims are respectfully requested.

<u>Claims 1, 4, 9, and 12 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,560,230 B1 to Li et al. ("Li").</u> This rejection is respectfully traversed.

Claim 1 now recites: *[a] data transmitting apparatus for transmitting a plurality of real time streams and a non-real time stream over a common transmission path, comprising:*

*a storing portion for storing first packets that compose the real time streams and second packets that compose the non-real time stream so that a first-in-first-out operation is respectively performed for every stream;*

*a counter portion for counting a predetermined time interval between transmissions times of the first packets for every said real time stream; and*

*a scheduler portion for transmitting the first packets stored for every said real time stream in the storing portion after every said predetermined time interval, calculating a transmission end time of the first packets from the predetermined time interval and the transmission times of the first packets of each of the real time streams for every said real time stream, transmitting a first packet whose transmission end time is the earliest in the first packets when the transmission times of the first packets overlap, and transmitting the second packets when the predetermined time interval between transmissions of said first packets are longer than the transmission times of the second packets.*

These claimed features are neither disclosed nor suggested by Li. First, Li discloses a method and apparatus for scheduling data packets for transmission over a data link. (Li, col. 3, lines

56-57.) Li discloses the apparatus includes "a counter for maintaining a virtual time for the scheduling engine[.]" (Li, col. 4, lines 39-40.)

According to Li, "packets are classified and inserted into a scheduler 50 which has a structure mirroring that of [a] policy tree" comprised of nodes and leaves. (Li, col. 8, lines 18-20.) "Scheduler 50 schedules the transmission of the packet out an output port. Scheduler 50 uses the policy associated with the port to determine the sequence in which to send any packets which are backlogged waiting to be sent through the output port." (Li, col. 8, lines 29-32.)

Li discloses that the scheduler 50 places each packet in a queue 55. (Li, col. 8, lines 36-37.) Further, "[s]cheduler 50 has a scheduling engine 60 corresponding to each node of policy tree 39." (Li, col. 8, lines 63-64.) The scheduling engine "interleaves packets from the different sources so that all packets 51 will eventually be passed by the scheduling engine 60." (Li, col. 9, lines 36-42.)

"Packets 51 are transmitted through a scheduling engine 60 at a rate R that corresponds to the bandwidth assigned to the scheduling engine in [the] policy tree." (Li, col. 9, lines 43-45.) "Each queue is assigned a bandwidth $R_q$ of:

$$R_q = R_{lc} / N_q$$

[w]here $R_{lc}$ is the bandwidth for the leaf class and $N_q$ is the number of queues associated with the leaf class." (Li, col. 9, lines 52-58.)

Li discloses "[i]n general, the packets in different queues 55 will not be equal in length." (Li, col. 9, lines 59-60.) Further, if a packet 51 of length L were transmitted at a rate R, its transmission will be completed after an interval I given by:

$$I = L/R.$$

(Li, col. 10, lines 1-5.)

Li discloses "Each leaf scheduling engine 60 selects a group of eligible packets 51 from the group of all packets 51 at the heads of the queues 55 in the group 56 associated with that leaf scheduling engine 60." (Li, col. 11, lines 7-11.)

Further, Li discloses "the leaf scheduling engine 60 will select for transmission the eligible packet 51 which meets a selection criterion." (Li, col. 11, lines 35-37.) "Preferably the selection

criterion is a first to finish selection criterion so that the eligible packet that has the earliest finish time F is selected." (Li, col. 11, lines 38-40.) Lee also discloses, "[a]n alternative, less preferable, approach is to use a selection criterion which selects for transmission the eligible packet with the earliest start time S." (Li, col. 11, lines 40-42.)

However, Li fails to disclose or suggest "*a counter portion for counting a predetermined time interval between transmissions times of the first packets for every said real time stream; and*

*a scheduler portion for transmitting the first packets stored for every said real time stream in the storing portion after every said predetermined time interval*[.]"

Accordingly, Li fails to disclose each and every element of claim 1. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) ("A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.").

Second, Li discloses a priority scheme, as shown in Li FIG. 4, including class 40 "real time" voice data and classes 42 and 44 which contain HTTP packets. (Li, col. 7, lines 23-37.) "A simple two level priority scheme, as shown in the priority tree of FIG. 4, designates high priority classes as "real-time" and lower priority classes as "best effort"." (Li, col. 12, lines 45-48.)

Further, Li disclose "[i]f one or more packets are being held by child scheduling engines 60 but none of them are eligible then the virtual time of the parent scheduling engine is advanced to the start time of the packet or packets being held by child scheduling engines 60 which have the earliest start time[, and] [t]he set of eligible packets is then identified based on the new virtual time (step 110)." (Li, col. 13, lines 1-7.)

However, Li fails to disclose "*transmitting the second packets when the predetermined time interval between transmissions of said first packets are longer than the transmission times of the second packets.*"

Consequently, Li fails to disclose or suggest the features of claim 1 in as complete detail as contained in claim 1. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920

(Fed. Cir. 1989) (For a claim to be anticipated, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim.").

For reasons similar to those given above, Li fails to disclose each and every element of claim 4 in as complete detail as contained in claim 4.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1 and 4 under 35 U.S.C. § 102(e) as being anticipated by Li.

While not conceding the propriety of the rejections of claims 9 and 12, Applicant submits that these rejections are moot in view of the cancellation of claims 9 and 12, and thus requests that the rejection of these claims also be withdrawn.

For reasons similar to those given above with respect to claims 1 and 4, new claims 17 and 22 claims are believed to be in condition for allowance as the features of these claims are neither disclosed nor suggested by Li.

Claims 3, 6, 11, and 14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Li in view of U.S. Pat. No. 5,539,729 to Bodnar ("Bodnar"). This rejection is traversed.

Claims 3 and 6 respectively depend from independent claims 1 and 4 and thus incorporate the distinct features recited therein, which are absent from Li as noted in detail above.

Bodnar fails to remedy the deficiencies of Li. Bodnar discloses a counter is associated with the higher priority packet stream, so that when the counter reaches a predetermined number, the higher priority packet stream is disabled, so that the lower priority packet stream may be processed. When the high priority packet stream is interrupt-driven, interrupts are disabled and then enabled after a predetermined number of packets are processed from the lower priority stream. (Bodnar, col. 3, lines 9-27.)

However, like Li, Bodnar fails to disclose or suggest *"a counter portion for counting a predetermined time interval between transmissions times of the first packets for every said real time stream; and*

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*a scheduler portion for transmitting the first packets stored for every said real time stream in the storing portion after every said predetermined time interval,"* as recited in claim 1.

Further, Bodnar fails to disclose *"transmitting the second packets when the predetermined time interval between transmissions of said first packets are longer than the transmission times of the second packets."*

Dependent claims 3 and 6 are thus distinct from even the combination of Li and Bodnar, for their incorporation of these features as well as for their separately recited patentably distinct features.

Additionally, the Office Action admits that Li fails to disclose or suggest *"wherein the scheduler portion is configured to treat times shorter than the transmission times of the second packets as new transmission times of the second packets when the second packets are not transmitted while a predetermined number of the first packets are transmitted."*

However, in this regard, Bodnar again fails to remedy the deficiencies of Li. While Bodnar, discloses interrupting or disabling the high priority stream when a counter reaches a predetermined number in order to permit processing from the low priority stream, Bodnar fails to disclose or suggest *"treat[ing] times shorter than the transmission times of the second packets as new transmission times of the second packets when the second packets are not transmitted while a predetermined number of the first packets are transmitted."*

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 3 and 6 under 35 U.S.C. § 103(a) as being unpatentable over Li in view of Bodnar. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.); *see also* MPEP 2143.03.

While not conceding the propriety of the rejections of claims 11 and 14, Applicant submits that these rejections are moot in view of the cancellation of claims 11 and 14, and thus requests that the rejection of these claims also be withdrawn.

For reasons similar to those given above with respect to claims 3 and 6, new claims 20 and 25 claims are believed to be in condition for allowance as the features of these claims are neither disclosed nor suggested by Li and Bodnar, either alone or in any permissible combination.

Claims 10 and 13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Li in view of U.S. Pub No. 2003/0119556 A1 to Khan ("Khan").

While not conceding the propriety of the rejections of claims 10 and 13, Applicant submits that these rejections are moot in view of the cancellation of claims 10 and 13, and thus requests that the rejection of these claims also be withdrawn.

Khan discloses a method for balancing transmission delays on the backhaul connections between a base station controller and multiple radio based stations connected to the base station controller in a daisy chain configuration. (Khan, para. [0005].) Khan discloses a number of techniques to prevent excessive delays including promoting packets after a predetermined period has passed even though other higher priority packets are waiting transmission in higher priority sub-queues. (Khan, para. [0022].)

However, Khan, like Li, fails to disclose or suggest "*a counter portion for counting a predetermined time interval between transmissions times of the first packets for every said real time stream; and*

*a scheduler portion for transmitting the first packets stored for every said real time stream in the storing portion after every said predetermined time interval,*" as recited in claim 1.

Further, Khan fails to disclose "*transmitting the second packets when the predetermined time interval between transmissions of said first packets are longer than the transmission times of the second packets.*"

Because Li and Kham, either alone or in any permissible combination, fail to disclose each and every feature of new claims 19 and 24, these new claims are believed to be in condition for allowance.

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## CONCLUSION

In view of the foregoing arguments, all remaining claims are believed to be in condition for allowance. If any further issues remain, the Examiner is invited to telephone the undersigned to resolve them.

This response is believed to be a complete response to the Office Action. However, Applicant reserve the right to set forth further arguments supporting the patentability of their claims, including the separate patentability of the dependent claims not explicitly addressed herein, in future papers. Further, for any instances in which the Examiner took Official Notice in the Office Action, Applicant expressly do not acquiesce to the taking of Official Notice, and respectfully request that the Examiner provide an affidavit to support the Official Notice taken in the next Office Action, as required by 37 C.F.R. § 1.104(d)(2) and MPEP § 2144.03.

Dated: March 10, 2009

Respectfully submitted,

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